

REMARKS¹

In the Office Action mailed January 18, 2008 (“Office Action”), the Examiner rejected claims 1-7 under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the enablement requirement; objected to the specification because of informalities; rejected claims 1, 3-9, and 11-14 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,766,471 to Ovshinsky et al. (“*Ovshinsky*”) in view of non-patent literature publication titled “Optical Networks: A Practical Perspective, 2nd ed.” to Ramaswami et al. (“*Ramaswami*”), U.S. Patent No. 5,777,383 to Stager et al. (“*Stager*”), and U.S. Patent Publication No. 2002/0140081 to Chou et al. (“*Chou*”); and rejected claims 2 and 10 under 35 U.S.C. §103(a) as being unpatentable over *Ovshinsky* in view of *Ramaswami*, *Stager*, and *Chou* in further view of U.S. Patent No. 5,097393 to Nelson et al. (“*Nelson*”).

By this Amendment, Applicants have amended claims 1, 7, 8, and 14. The amendments are fully supported by the specification and add no new matter. Further, Applicants cancel claim 9 without prejudice or disclaimer. Claims 1-8 and 10-14 remain pending in this application. Applicants respectfully traverse the aforementioned rejections and request reconsideration based on the following remarks.

Claim Rejections Under 35 U.S.C. §112

Claims 1-7 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. While disagreeing with the Examiner’s assertions, and solely in the interest of furthering prosecution of this application, Applicants have amended claims 1 and 7 to address the Examiner’s concerns. Claims 1 and 7 now recite electrical

¹ The Office Action contains statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants do not necessarily agree with or acquiesce to the Examiner’s characterization of the claims or the related art, even if those characterizations are not addressed herein.

“shielding” rather than electrical “isolation/isolating,” as suggested by the Examiner. Claims 2-6 depend either directly or indirectly from claim 1. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection of claims 1-7 under 35 U.S.C. § 112, first paragraph.

Objection to the Specification

The Examiner objected to the specification because of informalities. In response, Applicants have amended the specification to address the Examiner’s concerns. In particular, the specification has been amended to recite electrical “shield/shielding/shielded” rather than electrical “isolate/isolating/isolation,” as suggested by the Examiner. Applicants submit that the amendments to the specification adds no new matter. Accordingly, Applicants respectfully request that the Examiner withdraw the objections to the specification.

Claim Rejections Under 35 U.S.C. §103(a)

Applicants respectfully traverse the rejection of claims 1-8 and 10-14 under 35 U.S.C. §103(a) because a *prima facie* case of obviousness has not been established with respect to these claims.

The key to supporting any rejection under 35 U.S.C. §103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. Such an analysis should be made explicit and cannot be premised upon mere conclusory statements. *See* M.P.E.P. §2142, 8th Ed., Rev. 6 (Sept. 2007). “A conclusion of obviousness requires that the reference(s) relied upon be enabling in that it put(s) the public in possession of the claimed invention.” M.P.E.P. §2145. Furthermore, “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable of one of ordinary skill in the art” at the time the invention was made. M.P.E.P. §2143.01 (III), internal citations

omitted. Moreover, “[i]n determining the differences between the prior art and the claims, the question under 35 U.S.C. §103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” M.P.E.P. §2141.02 (I), internal citations omitted, (Emphasis in original).

When making a determination of obviousness, the Examiner must (1) determine the scope and content of the prior art, (2) ascertain the differences between the claimed invention and the prior art, and (3) resolve the level of ordinary skill in the pertinent art. M.P.E.P. §2141 (II). Moreover, “[o]ffice personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art.” M.P.E.P. §2141 (III).

As will be discussed in more detail below, a *prima facie* case of obviousness has not been established with respect to claims 1-8 and 10-14 because, at a minimum, the scope and content of the prior art and the differences between the prior art and the claimed invention are not articulated properly in the Office Action. Accordingly, the Examiner has failed to clearly articulate a reason why the prior art would have rendered the claimed invention obvious to one of ordinary skill in the art.

Claims 1, 3-8, and 11-14

Claims 1, 3-8, and 11-14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Ovshinsky* in view of *Ramaswami*, *Stager*, and *Chou*. Amended claim 1 recites a transceiver system that includes, *inter alia*, “a transmitter portion arranged on a bottom layer of a multi-layer circuit board, the transmitter portion capable of providing signals to a transmitter optical subassembly configured to transmit optical signals from the transceiver system,” and “a receiver portion arranged on the bottom layer of the multi-layer circuit board, the receiver

portion capable of receiving signals from a receiver optical subassembly configured to receive optical signals into the transceiver system.” Applicants respectfully submit *Ovshinski*, *Ramaswami*, *Stager*, and *Chou*, whether viewed separately or in combination, fail to disclose or suggest at least these claimed features.

Ovshinski generally discloses an electro-optical device capable of optical-to-optical communications between two or more multiple layer integrated circuit structures constructed using thin film technology to deposit the multiple layers in each structure. *See Ovshinski*, abstract and Col 5: ll. 1-15. As noted in *Ovshinski*, “[t]he integrated structure is preferably a multilayered structure formed from a plurality of layers of deposited materials...” *Id.* at Col. 5: ll. 25-28, (Emphasis added). Further, *Ovshinski* discloses that the structures are “formed on a common substrate and physically separated from each other.” *Id.* at Col. 5: ll. 39-40, (Emphasis added).

The thin film integrated circuit structures of the electro-optical device disclosed in *Ovshinski* may include “a photo-emitting device and a photo-receiving device...” *Id.* at Col. 5: ll. 16-18, (Emphasis added). “Preferably, the light-generating means and light-detecting means are vertically arranged with respect to each other.” *Id.* at Col. 5: ll. 30-32. As noted by the Examiner, *Ovshinski* further discloses that “the senders can be ... arranged to send local signals to receivers within their own plane.” *Id.* at Col. 6: ll. 17-19, (Emphasis added). *See also* Fig. 16 A. In other words, *Ovshinski* provides for a electro-optical device capable of internal cross-device optical communication. Accordingly, *Ovshinski* states that “bidirectional optical communication between photo-active devices of the two structures [of the electro-optical] device is possible.” *Id.* at Col. 30, ll. 17-19.

Nowhere, however, in the passages of *Ovshinski* cited by the Examiner or elsewhere is a transceiver system disclosed or suggested that includes “a transmitter portion arranged on a bottom layer of a multi-layer circuit board, the transmitter portion capable of providing signals to a transmitter optical subassembly configured to transmit optical signals from the transceiver system,” and “a receiver portion arranged on the bottom layer of the multi-layer circuit board, the receiver portion capable of receiving signals from a receiver optical subassembly configured to receive optical signals into the transceiver system,” as recited in claim 1 and similarly recited in claims 7, 8, and 14. In fact, nowhere does *Ovshinski* even disclose a “multi-layer circuit board,” having a “bottom layer,” “a top layer,” and a “first intermediate layer,” as recited in claim 1 and similarly recited in claims 7, 8, and 14. Rather, *Ovshinski* is limited to an electro-optical semiconductor device having a plurality of integrated circuit structures formed by depositing one or more thin-film layers on a substrate, wherein optical signals sent by a light-generating means and received a light-detecting means are transmitted internally between the structures within the electro-optical device. See *Ovshinski*, Fig. 16 A and Col. 30: ll. 5-30.

In rejecting claims 1, 3-8, and 11-14 under 35 U.S.C. §103, the Examiner further cites to *Ramaswami*. Applicants respectfully submit, however, that *Ramaswami* fails to cure at least the aforementioned deficiencies of *Ovshinski*. *Ramaswami* generally discloses several types of photodetectors configured to generate “electrical current proportional to the ... optical power [incident on the photodetector].” *Ramaswami*, p. 192: ll. 1-4. As noted by the Examiner, *Ramaswami* further discloses the use of an avalanche photodiode as a photodetector. *Id.* at p. 197: ll. 6-13. Nowhere, however, does *Ramaswami* disclose or suggest “a transmitter portion arranged on a bottom layer of a multi-layer circuit board, the transmitter portion capable of providing signals to a transmitter optical subassembly configured to transmit optical signals from

the transceiver system,” and ”a receiver portion arranged on the bottom layer of the multi-layer circuit board, the receiver portion capable of receiving signals from a receiver optical subassembly configured to receive optical signals into the transceiver system,” as recited in claim 1 and similarly recited in claims 7, 8, and 14. Accordingly, *Ramaswami* fails to cure the deficiencies of *Ovshinski*.

Further, in rejecting claims 1, 3-8, and 11-14 under 35 U.S.C. §103, the Examiner cites to *Stager*. Applicants respectfully submit, however, that *Stager* fails to cure at least the aforementioned deficiencies of *Ovshinski* and *Ramaswami*. *Stager* generally discloses a semiconductor chip package that “incorporates a plurality of levels of interconnect-conductive layers within the package which selectively direct signals to and from pins of the die and/or the pins of the package.” *Stager*, abstract. As noted by the Examiner, *Stager* further discloses that the semiconductor chip package may also incorporate “a ground shield layer and optional component bearing layers...” *Id.* at Col. 4: ll. 53-57. *See also* Col. 5: ll. 12-16. Nowhere, however, in the passages of *Stager* cited by the Examiner or elsewhere is a transceiver system disclosed or suggested that includes “a transmitter portion arranged on a bottom layer of a multi-layer circuit board, the transmitter portion capable of providing signals to a transmitter optical subassembly configured to transmit optical signals from the transceiver system,” and ”a receiver portion arranged on the bottom layer of the multi-layer circuit board, the receiver portion capable of receiving signals from a receiver optical subassembly configured to receive optical signals into the transceiver system,” as recited in claim 1 and similarly recited in claims 7, 8, and 14. Accordingly, *Stager* fails to cure the deficiencies of *Ovshinski* and *Ramaswami*.

Finally, in rejecting claims 1, 3-8, and 11-14 under 35 U.S.C. §103, the Examiner cites to *Chou*. Applicants respectfully submit, however, that *Chou* fails to cure at least the

aforementioned deficiencies of *Ovshinski*, *Ramaswami*, and *Stager*. *Chou* generally discloses the use of “a plurality of ceramic substrates ... to manufacture and integrate a highly integrated multi-layer circuit module,” *Chou*, abstract. *Chou* further discloses that its multi-layer circuit module may include “active devices, basic passive devices, high frequency passive devices, and shielding ground planes.” *Id.* at paragraph [0010]. Nowhere, however, in the passages of *Chou* cited by the Examiner or elsewhere is a transceiver system disclosed or suggested that includes “a transmitter portion arranged on a bottom layer of a multi-layer circuit board, the transmitter portion capable of providing signals to a transmitter optical subassembly configured to transmit optical signals from the transceiver system,” and “a receiver portion arranged on the bottom layer of the multi-layer circuit board, the receiver portion capable of receiving signals from a receiver optical subassembly configured to receive optical signals into the transceiver system,” as recited in claim 1 and similarly recited in claims 7, 8, and 14. Accordingly, *Chou* fails to cure the deficiencies of *Ovshinski*, *Ramaswami*, and *Stager*.

For at least the above reasons, claim 1 is allowable. Further, as noted above, claims 7, 8, and 14 recite similar elements to those recited in claim 1, and therefore are allowable for at least the same reasons stated with respect to claim 1. Claims 3-6 and 11-13 depend either directly or indirectly from one of claims 1, 7, and 8 and are allowable for at least the same reasons as the claim from which they depend. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 3-8, and 11-14 under 35 U.S.C. §103.

Claims 2 and 10

Claims 2 and 10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Ovshinsky* in view of *Ramaswami*, *Stager*, and *Chou* in further view of *Nelson*. Claims 2 and 10 depend directly from independent claims 1 and 8 respectively, and therefore incorporate all of the

elements of the claim from which they depend. As discussed above with respect to the Examiner's rejection of claims 1 and 8 under 35 U.S.C. §103, *Ovshinsky, Ramaswami, Stager*, and *Chou* fail to disclose or suggest at least "a transmitter portion arranged on a bottom layer of a multi-layer circuit board, the transmitter portion capable of providing signals to a transmitter optical subassembly configured to transmit optical signals from the transceiver system," and "a receiver portion arranged on the bottom layer of the multi-layer circuit board, the receiver portion capable of receiving signals from a receiver optical subassembly configured to receive optical signals into the transceiver system," as recited in claim 1 and similarly recited in claim 8.

Nelson fails to cure at least the aforementioned deficiencies of *Ovshinski, Ramaswami, Stager*, and *Chou*. *Nelson* generally discloses "[a]n interconnect device for electronic components ... [having] at least three layers of circuitry, one for signal transmission and two for voltage planes (power and ground)." *Nelson*, abstract. As noted by the Examiner, *Nelson* further discloses that "both the power plane (and the ground plane, if desired) can be split into several electrically isolated segments to deliver different power and references voltages." *Nelson*, Col. 12: ll. 26-31. Nowhere, however, in the passages of *Nelson* cited by the Examiner or elsewhere is a transceiver system disclosed or suggested that includes "a transmitter portion arranged on a bottom layer of a multi-layer circuit board, the transmitter portion capable of providing signals to a transmitter optical subassembly configured to transmit optical signals from the transceiver system," and "a receiver portion arranged on the bottom layer of the multi-layer circuit board, the receiver portion capable of receiving signals from a receiver optical subassembly configured to receive optical signals into the transceiver system," as recited in claim 1 and similarly recited in claim 8.

For at least the above reasons, claims 2 and 10 are allowable. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection of claims 2 and 10 under 35 U.S.C. §103.

Conclusion

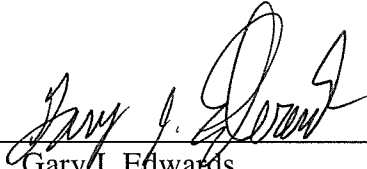
In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: April 18, 2008

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